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# Transforming the Office of Sustainability's Front Yard into an Edible Landscape

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TRANSFORMING THE WKU OFFICE OF SUSTAINABILITY'S FRONT YARD INTO AN  
EDIBLE LANDSCAPE

A Capstone Experience/Thesis Project

Presented in Partial Fulfillment of the Requirements for  
the Degree Bachelor of Science with  
Honors College Graduate Distinction at Western Kentucky University

By:

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\*\*\*\*\*

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2016

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## ABSTRACT

Since moving to 503 Regents Avenue in Fall 2013, the WKU Office of Sustainability has served as a sustainable best practices demonstration home for the WKU and Bowling Green communities. Not only does the house in which the Office of Sustainability is located serve as an educational tool for people, but also the landscape. In May 2014, the WKU Community Garden was established in the backyard. The transformation of the Office of Sustainability's front lawn into an edible landscape began on April 1, 2015. The purpose of this project is to demonstrate an alternative to conventional lawns.

Keywords: WKU Office of Sustainability, sustainability, agriculture, edible landscaping

Dedicated to all the brave souls who decide to venture off the beaten path in some fashion throughout their lives. From one fellow soul to another, I salute you all.

## ACKNOWLEDGEMENTS

One of the most important things I learned during my time at WKU is the importance of community. Projects similar in nature to this one absolutely take a village, and I am extremely thankful to have had an immense amount of help and support from the WKU community. First, I want to thank my advisor for this project and my Self-Designed Major, Dr. Martin Stone. His guidance during the initial planning process was vital to the success of this project. Next, I want to thank Christian Ryan and Beth McGrew. These two women have been wonderful mentors to me during my time as a Project Grow Fellow. One conversation with them during my first year as a Fellow inspired this project.

I'm so thankful for the 2014-15 and 2015-16 Project Grow Fellows. Every one of them has contributed lots of manual labor and support for this project. Several Bowling Green and WKU community members helped with either sourcing several of the plants in the edible landscape or putting together the structures in the garden—Joleen Stone, Chuck Weatherman, Tim Kersheville, Dan Cheney, Dr. Todd Willian, and Ken Casey. Thank you all so much for your help. I also want to thank every single student who volunteered their time to help in the landscape in any capacity. Without their help, I would not have been able to complete this project. It has been an absolute pleasure working with and getting to know all of you.

Finally, thank you to everyone who reads this thesis and/or visits the edible landscape at the Office of Sustainability. Thank you for taking the time to learn about edible landscaping, read about my journey through this project, and/or engage with the project. I am hopeful that this project has inspired some of you to turn your own lawns into productive edible landscapes.

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## FIELD OF STUDY

Major Field: Sustainable Agriculture (Honors Self-Designed)



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## CHAPTER 1

### INTRODUCTION

Within the past 10 years, edible landscaping has gained a considerable amount of popularity in the United States. Several well-known gardening/sustainable living publications (e.g. Mother Earth News, Better Home and Gardens, Rodale's Organic Life) have published articles to inform their readers how to "eat their yards" by offering a plethora of design and plant recommendations. As of March 2016, the city of Bowling Green is home to two edible landscapes: the front yard of the Former Friends of Young Americans (FFOYA) House, located at 1035 Kentucky Street, and the front yard of the WKU Office of Sustainability (henceforth referred to as "the Office"), located at 503 Regents Avenue. The creation of the edible landscape at the Office is the focus of my thesis project.

Before I begin to tell the story of my thesis project, it may be helpful to provide some background information about edible landscaping. Although some people may believe edible landscaping is a relatively recent practice, it has a history dating back to before the Common Era.

#### *History of Edible Landscaping*

The earliest edible gardens have been traced back to 1400 BCE, where Ancient Egyptian tomb paintings depict gardens of the wealthy featuring fish ponds, trellised grapes, and fruit trees (e.g. figs, pomegranates, and dates). These gardens were typically rectangular in shape and were surrounded by walls, which offered both protection from the sun and privacy. The Persians eventually perfected the design of these “pleasure gardens” in such a way that the space was used for outdoor entertainment, dining, and lovemaking. Over time, these gardens that once only contained edibles began to incorporate more ornamental plants (Creasy, 2010).

Early Roman accounts of villa gardens frequently note the use of fruits and herbs. However, as time passed, Roman gardens became more ornamental in nature rather than functional. According to a comment made by Marie-Luise Gothein in her 1966 work *A History of Garden Art*, this greater desire for the enjoyment supplied by ornamental gardens and adversity to agrarian life was “the beginning of the end for the Roman people” (Creasy, 2010).

Villa gardens were practically non-existent after Rome’s fall in the 5<sup>th</sup> century CE. Edible gardens became prominent again as Christian monasticism began to spread throughout Medieval Europe. These monasteries traditionally planted fruits, vegetables, and herbs together. Grafted fruit trees, raised beds, fish ponds, and beehives were common sights in the gardens. In terms of ornamental plants, the monks grew few flowers. Lawns, however, were institutionalized by monasteries; turf lawns were installed at the center of the cloisters to provide an environment conducive to studying and meditating (Creasy, 2010).

Ornamental gardens gained popularity again during the European Renaissance (14<sup>th</sup> century to 17<sup>th</sup> century CE). As popularity increased, the presence of fruits and vegetables—and even oak

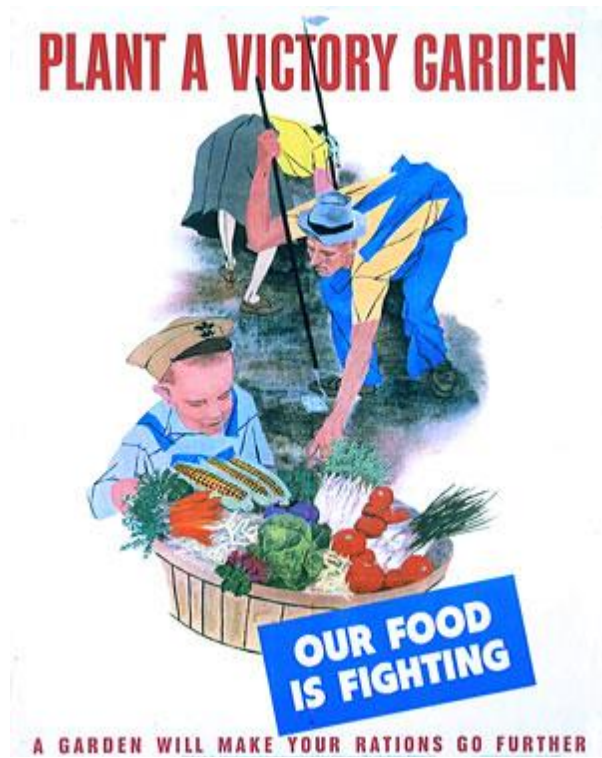


**Figure 1.1** View of Château de Villandry's Kitchen Garden, Source: *Château de Villandry*

trees—solely in Renaissance kitchen gardens was in vogue. French and Scottish gardeners in the middle- and upper-classes brought edibles back into ornamental gardens during the 17<sup>th</sup> to 19<sup>th</sup> centuries. Their gardens were typically formal, utilized boxwood hedges and espaliered fruit trees—trees trained to grow against a flat surface—to line walls and walkways, and interplanted vegetables within flower beds. These kinds of gardens can still be found throughout Europe today, like the Château de Villandry, a large country house located in Villandry, France famous for its large gardens (Creasy, 2010).

Edible gardens became very commonplace in the U.S. during World War II. Urbanities were encouraged to plant these “victory gardens” through the use of eye-catching propaganda posters (see Figure 1.2). Maintaining a victory garden would yield more food for themselves and the troops. Various public and private entities (i.e. government agencies, schools, businesses) worked to provide the resources needed for individuals and entire communities to grow food. Across the U.S.,

backyards, parks, baseball fields, schoolyards, and vacant lots were all used to grow food (Smithsonian, n.d.).



**Figure 1.2** World War II Victory Garden Poster, Source: Reinhardt, n.d.

Women's magazines at the time frequently published how-to guides for growing victory gardens and canning. The government urged people to can their excess produce so that commercial canned goods could be reserved for the troops. From 1942 to 1943, the number of families that bought pressure cookers more than quadrupled from 66,000 to 315,000.

According to USDA estimates, over 20 million victory gardens were planted during the war, which produced 9-10 millions of tons of produce. However, once the war ended, promotion of victory gardens ceased and many gardens went unplanted (Reinhardt, n.d.).

### *The Food Not Lawns Movement*

In his 1991 novel *Second Nature: A Gardener's Education*, best-selling author Michael Pollan brings attention to the "importance" of front lawns to suburbia. He tells the story of his father who, when Pollan was young, decided not to mow the lawn of their suburban home one summer. According to Pollan, many of their

neighbors passive-aggressively showed their discontent with the non-conforming lawn. Pollan narrates the moment when one neighbor finally approached his father:

He [Pollan's father] went to the garage and cranked up the rusty old Toro for the first time since spring... He pushed it out to the curb and then started back across the lawn to the house, but not in a straight line; he swerved right, then left, then right again. He had made an *S* in the tall grass. Then he made an *M* and finally a *P*. These were his initials, and as soon as he finished writing them, he wheeled the lawn mower back to the garage, never to start it up again. (Pollan, 1991, p. 21)

The Pollan's moved to a different home not long after that incident.

According to Pollan, his father installed an expensive remote-controlled sprinkler system (which never seemed to work properly) in order to keep their suburban front lawn green while using the least labor-intensive method possible. The landscape looked nothing like the large garden annually maintained by Pollan's grandfather. It was not productive. Pollan realized he wanted a place where he could get his hands dirty and engage with the land (Pollan, 1991).

Pollan's story is just one example of the types of experiences that drive people away from the conventional grass lawns that currently characterize American suburbia. Approximately eight years after Pollan published *Second Nature*, the grassroots organization Food Not Lawns was founded in 1999 by a group of Food Not Bombs activists in Eugene, Oregon. The organization was created on the premise of educating and advocating for communities to take control of their local food systems and helping people transform their conventional lawns into productive edible landscapes. In the beginning, Food Not Lawns organizers hosted weekly study groups, offered a free permaculture design course, organizers annual

seed swaps, and maintained a large educational garden. Since the establishment of the first Food Not Lawns chapter in 1999, the organization has grown to more than 50 chapters across the nation (*Food Not Lawns*, 2015).

The Food Not Lawns movement is just one part of a larger movement—the urban agriculture movement. Agriculture in urban areas does not function in the same way that rural agriculture does. People living in urban areas often have little to no green space and are dependent upon outside sources (oftentimes hundreds of miles away) for their food. Conventional agriculture is commonly practiced in rural agriculture, integrating the use of fossil fuel-based fertilizers, pesticides, and herbicides that are applied to expansive fields with large diesel-powered tractors. The premise of the urban agriculture is to break away from our current food system which is heavily dependent on fossil fuels, inefficient, and environmentally unconscious. According to Southside Community Land Trust, an organization based out of Providence, Rhode Island that offers several urban agriculture programs to its community members, urban agriculture allows “people to reclaim their connections to nature, to the act of eating, and to each other through the act of growing food, all without leaving the city” (Southside Community Land Trust, n.d.).



## CHAPTER 2

### THE WKU OFFICE OF SUSTAINABILITY

Since its creation in 2007, the WKU Office of Sustainability has made it its mission “to promote a culture of sustainability at WKU, integrating principles of ecological integrity and social equity into academics, practices, and partnerships” (“WKU Office of Sustainability – Mission Statement,” n.d.). In the summer of 2012, the Office acquired the house located at 503 Regents Avenue per the plans outlined in a proposal submitted by Christian Ryan, the WKU Sustainability Coordinator. According to her proposal, the house would serve as a demonstration home for sustainable best practices (Salman, 2014).

During the first two years at 503 Regents, the Office’s 33 m x 36 m backyard was predominately turf that was mowed and otherwise maintained by the WKU Facilities Management. Like all campus green spaces at the time, the lawn was maintained through the consumption of fossil fuels—it was mowed with a gas-powered lawnmower and doused with synthetic herbicides. Seeing that the purpose of the Office’s location is demonstrate to the campus and Bowling Green communities sustainable best practices, it was decided that the lawn space needed to be transformed into a productive, ecologically-sustainable garden space.

The WKU Community Garden was established in May 2014. At the same time, Project Grow, the student group that maintains the garden, was created in large part by the efforts of Beth McGrew, who was a graduate student in the Social Responsibility & Sustainable Communities program serving as a graduate assistant to the Office. In almost two years' time, the Office's backyard has gone from having only four raised beds—soil-filled garden beds that are established on top of existing soil—to the addition of two hügelkultur (German for “mound culture”) beds, four triangle-shaped raised beds, multiple berry bushes, a green-roofed garden shed, a stone path with several types of plants inlaid and surrounding it, and a bee hive (see Appendix A for then-and-now pictures of the backyard).

When the Office acquired the property at 503 Regents, Ryan did not have immediate plans to convert the front yard into an edible landscape. Although she wanted the house to serve as a sustainable best practices home, it took a series of conversations and experiences revolving around food and farming for her to realize the importance of the Office's landscape being completely edible. Not only can edible landscaping the Office provide a platform for demonstrating an alternative to ornamental landscapes, but it also provides a community gathering place, “fresh vegetables for the [WKU] Food Pantry [which is currently housed at the Office], and a working educational garden in which students can learn and grow” (Ryan, 2016).

At the start of the 2014-2015 academic year, I joined Project Grow as one of the six inaugural Fellows. During that first year, I had conversations with both Ryan and McGrew about edible landscaping. The desire to install edible landscaping in

place the Office's bermudagrass (*Cynodon dactylon*) sod—which is invasive and commonly used on golf courses—front lawn was strongly present, but no plans had ever been implemented. Coincidentally, I started to gain interest in learning about edible landscaping and urban agriculture before the conversations with Ryan and McGrew.

These conversations initially inspired me to turn the Office's lawn into an edible landscape strictly for a Project Grow project. It then occurred to me that this project offered additional opportunity: As a stipulation of my Honors Self-Designed Major, I was required to complete a Capstone Experience/Thesis (CE/T). I eventually decided to adopt the edible landscaping project as my CE/T. By doing this, I could take a hands-on approach to learning about edible landscaping for myself while also providing an interactive educational platform for others, as well as a service to the WKU Sustainability program—specifically, the Office.

## CHAPTER 3

### LANDSCAPE INSTALLATION



**Figure 3.1** Front View of WKU Office of Sustainability (taken March 31, 2015)

This project is intended to be an on-going installation that I hope many students can benefit from long after I have graduated from WKU. During the initial planning process, I carefully thought about both the plants used in the landscape and the methods for ensuring the sustainability of the landscape. Since I am currently a Project Grow Fellow, I have shared information about the landscape with my fellow Fellows (i.e. why I planted ABC plants together, how to care for XYZ plants, etc.) throughout the installation process. To make sure this information is not lost as senior Fellows graduate and new Fellows join, this thesis contains a care guide (see Appendix D) for all plants installed at the time this thesis was written.

Before starting the installation of the Office's landscape, I sought approval from Joshua Twardowski, the Campus Services Manager, since Facilities oversaw the care of the Office's landscape at the time. Getting things accomplished on a public university campus can often be a very tedious process that involves, but is not limited to, sending several e-mails, scheduling in-person meetings, gaining permission, and/or filling out lots of paperwork. Anxious to begin working, I bypassed the bureaucracy altogether and officially began installation on April 1, 2015 with preliminary approval from Christian Ryan.

#### *Plant Selection and Placement*

With the exception of a mature magnolia (*Magnolia x soulangiana*) tree and two boxwood (*Buxus sempervirens*) bushes, all plants contained within this landscape have food, medicinal, and/or practical uses (i.e. for dyes) and are suitable to grow in USDA Zone 6b—the growing zone in which Bowling Green is located. Plants and seeds were sourced local when possible. Many heirloom cultivars are planted within the landscape. For a comprehensive list of all plants installed in the landscape between April 1, 2015 and May 13, 2016, see Appendix B.

Careful thought was put into how the plants would be placed throughout the landscape. Companion planting—a practice that involves the planting of two or more plants together so that one or more plants benefit from increased growth, enhanced flavor, and/or protection from pests and disease—was utilized in most of the landscape. For example, alliums (e.g. onions, shallots, chives, etc.) are good companions for strawberries (*Fragaria* spp.). The pungent smell characteristic of





alliums deters pests, such as aphids, from the strawberry plant. More extensive research was required to find edible companions for both the blueberry (*Vaccinium* spp.) bushes and magnolia tree. Compared to most fruits, blueberries require acidic soil (pH = 4.1-5.0) for proper growth (U.S. Highbush Blueberry Council, 2002).

Magnolias (*Magnolia* spp.) are allelopathic, which means they exude chemicals—specifically, costunolida and parthenolide, which are two sesquiterpene lactones—that discourage water and nutrient competition with most plants (de Jauregui, n.d.).

Wintergreen (*Gaultheria procumbens*) is one of very few fruiting plants that can



**Figure 3.3** Me Spreading the First Compost Layer (taken by Elizabeth Cole on April 1, 2015)

tolerate heavy shade and acidic/allelopathic conditions.

#### *Removal of Bermudagrass Sod*

When considering methods for ridding the front yard of the bermudagrass, I was faced with three options: 1) spray the entire lawn with glyphosate (a.k.a. Roundup®), a fossil fuel-based synthetic herbicide; 2) cut the bermudagrass out with a sod cutter; or 3) smother it with alternating layers of

cardboard and compost (see Figures 3.4, 3.5, and 3.6 for the general process of making each strip). I decided to use Option #3 due to it being the most environmentally beneficial—the decomposing bermudagrass and cardboard, along with the compost, would add biomass to the landscape, unlike the other options.



**Figure 3.4** 2<sup>nd</sup> Strip of Bermudagrass Cover: Cardboard Layer (taken May 8, 2015)



**Figure 3.5** 2<sup>nd</sup> Strip of Bermudagrass Cover: Wet Cardboard (taken May 8, 2015)



**Figure 3.6** 2<sup>nd</sup> Strip of Bermudagrass Cover: Compost and Leaf Mulch Layer (taken May 8, 2015)



While conducting research for my edible landscape plans, I saw images of landscapes that had gravel in place of grass around all of the beds. Although gravel can look aesthetically pleasing—depending on the color of gravel used—and is a permeable surface that allows water to percolate into the soil underneath, gravel is not productive. Using gravel in place of grass in a front yard, in my opinion, also takes away from the space’s ability to be inviting and welcoming to passersby. Lastly, unlike gravel, the feeling of walking barefoot across a grass lawn can be appealing to people.

In order to keep the look of a grass lawn while still making the “blank spaces” in the landscape productive (and edible), I decided to sow White Dutch clover (*Trifolium repens*), which is technically not a grass (a plant belonging to the Poaceae family), but a legume (a plant belonging to the Fabaceae family). White Dutch clover attracts pollinators, such as honeybees, to the landscape and contributes nitrogen to the soil as a nitrogen-fixer. It is also edible: the leaves can be eaten raw or cooked, fresh flowers can be used in salads, dried flowers can be used as a tea or in baked goods, and the roots can be eaten cooked.

Since White Dutch clover takes time to establish itself, the soil laid practically bare for a long period of time. Because of this, plants that most people commonly consider “weeds” in their lawns (and thus spray with herbicides) began to sprout. Many of these weeds are edible, such as dandelion (*Taraxacum officinale*), chickweed (*Stellaria media*), and yellow wood sorrel (*Oxalis stricta* L.). Seeing that

the Office's front yard is an edible landscape, it would be appropriate to keep all edible weeds rather than pull them out of the ground.

### *Educational Demonstrations*

Not only does the landscape itself demonstrate to the WKU and Bowling Green communities an alternative to conventional lawns, but various aspects within the landscape also serve as miniature demonstrations. The hazelnut shrub (*Corylus americana*) and serviceberry tree (*Amelanchier arborea*) are planted in the ground, whereas the columnar apple tree (*Malus* x 'UEB 3449-1') is planted in a large container at the front of the landscape near the herb garden. Contained trees are ideal for people who live in (sub)urban areas with little to no yard space. The trees can be kept out in the yard, on a patio, or inside the home near a sunny window.

In addition to the different methods used for growing trees (or, in the case of the hazelnut, tree-like shrub), I have also demonstrated some of the different types of building materials one can use to build raised beds and trellises. Wood—specifically, eastern red cedar (*Juniperus virginiana*)—is most commonly used as a raised bed building material in this area. However, using only wood for raised beds—especially if someone plans to build several for a garden space—can be rather expensive. The bricks



**Figure 3.7** Unfilled Brick Raised Bed for Edible Flowers (taken on March 11, 2016)

used in the front edible flower bed (see Figure 3.7) came from around the walkway leading up to the Office's front porch. Since I wanted to plant beets (*Beta vulgaris* subsp. *vulgaris* convar. *vulgaris* var. *vulgaris*) next to the walkway, the bricks needed to be removed. Instead of letting the bricks sit on the front porch or in the Office's backyard after removal, I decided to reuse them in the landscape as a building material—meaning less money spent and less wood being consumed.



**Figure 3.8** Glass Bottle Raised Bed (taken on April 20, 2016)

Glass bottles of various shapes, sizes, and colors were also utilized as a raised bed building material. With the help of my fellow Project Grow Fellows, Christian Ryan, and several of my friends, I acquired these bottles, which would have otherwise been recycled or thrown into a landfill, for extremely cheap—*free*. The Fellows and several volunteers helped create the bed (see Figure 3.8). This particular bed is for shade-loving/tolerant plants and is an area

that receives a fair amount of shade. When that part of the yard does receive sunlight, the glass bottles heat up. This allows for the bottles to heat up and warm the surrounding soil, thus having the potential to extend the growing season for that bed during late fall/early winter, albeit for only a few days. Some caution does have

to be exercised when working in and around this bed. Glass is fragile, so people should mind their footing near this bed. When the bed is being raked in preparation for sowing seeds, gardeners should carefully rake along the edges so as to not forcefully hit the bottles.

There are three types of trellises present in the landscape: a single-wire grape trellis, a ranch panel trellis for scarlet runner beans (*Phaseolus coccineus*

‘Scarlet Runner’), and a stacked bicycle wheel trellis for passionflower (*Passiflora incarnata*) vines. The grape trellis was built by Dan Chaney, a Project Manager for Planning, Design and Construction, who also graciously donated large wooden posts from his farm for the trellis. Chloe French and Sean Nelson, two WKU undergraduate students who volunteered with Project Grow during the Spring 2016 semester, put together the bicycle wheel trellis (see Figure 3.9) for the passionflower vines. The bicycle wheels used are worn-out wheels that came from Big Red Bikes, the free bike rental program for WKU students, faculty, and staff that is housed at the Office.



**Figure 3.9** Bicycle Wheel Trellis (taken on April 30, 2016)

## CHAPTER 4

### BENEFITS & CHALLENGES

#### *Benefits of Edible Landscaping*

Making the conscious decision to transform a front lawn into an edible landscape provides several benefits for a household. Maintaining the edible landscape from which the household's food came allows the consumers to know what inputs were (or were not) used in the growing of the food. Eating produce that came from landscape costs significantly less than buying the same produce at the grocery store or local farmers market. Being exposed to more fresh fruits and vegetables can encourage healthier eating habits among members of a household. Finally, working outside in the landscape provide an environment for people to simultaneously socialize, have fun, destress, and/or get some exercise.

The most important benefit edible landscaping has on our environment is the energy savings. No transporting of produce is required when a household grows food for personal consumption, which means no fossil fuels are burned. If the household uses a car as their primary mode of transportation, driving less frequently means less fossil fuels are consumed.

When an edible landscape is not mowed with a gas-/diesel-powered mower and not maintained with synthetic fertilizers, pesticides, and/or herbicides, the

landscape's carbon footprint significantly shrinks. In his article, "Fuel-Efficient Lawns and Landscapes," Dr. Leonard Perry, Extension Professor at the University of Vermont, refers to information contained within a PPPro online newsletter written by Paul Tukey, who is an organic lawn care expert and the founder of SafeLawns.org. Tukey states that the average household with a one-third acre lawn will consume five gallons of gas for mowing and trimming, seven gallons for fertilizing, five gallons for watering (using municipal water), and one gallon for clean-up—a total of 18 gallons of gas per household per year (Perry, n.d.).

Let's consider the footprint of the Office's front yard at the time when Facilities was maintaining the space. The front yard is approximately 1,246 ft<sup>2</sup>, or 0.029 acres. Using Tukey's estimations, Facilities would have used about 0.515 gallons of gas to maintain the lawn per year, meaning a total of 0.815 gallons were consumed over the one year and seven months Facilities cared for the space since the Office moved to 503 Regents in Fall 2013. Approximately 19.64 pounds of CO<sub>2</sub>, a major greenhouse gas, are produced for every gallon of pure gasoline burned (U.S. Energy Information Administration, 2015). By transforming the Office's front lawn into an organic edible landscape, not using a gas-powered push mower, and watering plants with rainwater, about 10.115 pounds of CO<sub>2</sub> is saved from being released into the atmosphere per year.

In addition to the environmental benefits, the Office's edible landscape provides benefits for the WKU community. The landscape is a place where community members can learn about edible landscaping. Students can come to the



Office to not only volunteer in the backyard, but also in the front. Currently, WKU Food Pantry clients can pick fresh produce and herbs from the backyard as seasonally available. Once plants in the front yard are mature, clients will also be able to pick from the landscape. The Office acquired a food dehydrator and pressure cooker in March 2016. If it is speculated by the Project Grow Fellows that not all the fresh produce and herbs from the landscape will be gathered before the plants die or go dormant, the remaining food items can be preserved through canning and/or dehydrating. This will help the WKU Food Pantry tailor to clients' wants by stocking more locally-sourced, less-processed, and (in most cases) wholesome foods on the shelves.

### *Challenges Faced During the Project*

Projects similar in nature to this CE/T project are great educational tools for people, including myself, to learn how to do something. Simultaneously, people can also learn how *not* to do something through others' trial-and-error. Below are some of the challenges I faced during the landscape installation process.

### *Covering the Bermudagrass*

From April 1, 2015 to the last day of the Spring 2015 semester (May 15<sup>th</sup>), I was able to cover approximately half of the bermudagrass. That summer, I was studying Mandarin Chinese as a participant in the Critical Language Scholarship Program in Suzhou, China for two months. I was not in Bowling Green for the entire summer and left no instruction for the Project Grow Fellows who were around to cover the rest of the yard. Upon my return to WKU in late August 2015, the

bermudagrass began to spread onto the covered portion around the edges. Had I been in Bowling Green or at least requested that the remainder of the front yard be covered while I was away, I could have spent time focusing on building beds for the space rather than covering up more bermudagrass than what had been there at the end of the spring semester.



**Figure 4.1** Yard Covering Progress at End of Spring 2015 Semester (taken on May 13, 2015)



**Figure 4.2** Yard Covering Progress at Beginning of Fall 2015 Semester (taken on August 25, 2015)

Despite that challenge, I finished covering the main portion of front yard and sowed White Dutch clover seed for the first time on October 16, 2015. The particular White Dutch clover seed sown was purchased from Outsidepride.com and came pre-inoculated with Nitro-Coat® rhizobia—strains of bacteria of the genus *Rhizobium* that encourage more successful legume seed germination by attracting more moisture to the seed. The remaining part of the yard, a small patch of lawn enclosed by the driveway, front porch, and walkway, was covered on February 5, 2016. However, in mid-April 2016, bermudagrass began to spread around the edge of the covered portion near the left-hand boxwood bush after Tennessee coneflower (*Echinacea tennesseensis*) and thyme (*Thymus vulgaris*) had already been planted under both boxwood bushes and Detroit Dark Red beets—which had already



sprouted—around the walkway on that side. The beet sprouts were uprooted and eaten so as to not let all of the seeds go to waste in vain. The entire area next to the front porch and under the boxwood was covered with thick layers of cardboard and a mix of topsoil, each around 2” in thickness.

#### *Propagating Elderberry Cuttings*

On February 17, 2016, I began the process of propagating four elderberry (*Sambucus canadensis*) plants from stem cuttings purchased from River Hills Harvest, an elderberry farm based out of Hartsburg, Missouri. The cuttings—separated by cultivar—were half-submerged in jars of water and left to



**Figure 4.3** Elderberry Cuttings in Water (taken on February 18, 2016)

soak overnight (see Figure 4.3). The next day, the cuttings were planted into pots of garden soil. In order to keep a moist environment around the cuttings, plastic grocery bags were tied around over the cuttings and placed near a sunny window in the Office to replicate a miniature greenhouse. The cuttings were kept under these conditions until they began to leaf out, when I then removed the plastic bags but still kept the soil moist and periodically set the plants outside as the weather became warmer.

On March 24, 2016, I spent the morning at the Office mulching the front yard, which had been sown with more White Dutch clover the day before, with some damp straw from the backyard. The four elderberry cuttings were on the back porch getting some sunshine. About an hour later, a strong wind storm passed through the area. I forgot to put the cuttings back inside the Office before the winds came. As a result, one cutting was completely uprooted from its pot and flung somewhere—it was never recovered—and another snapped in half. The remaining two cuttings were placed in Project Grow’s greenhouse—which is behind the Environmental Health and Safety House near the Chestnut Street South Lot—for safe measure.

At the time, the greenhouse’s cooling system was not working properly. Due to the environmental conditions in the greenhouse being unsuitable and not diligently check on the plants, one of the two remaining cuttings desiccated, while the other was salvageable. The last cutting was moved back to the Office in an attempt to nurse it back to good health. In order to make up for the tragic loss experienced, four elderberry plants were retrieved from Ken Casey, the husband of Dr. Jane Olmsted, the department head of Diversity & Community Studies.

#### *Working Around Established Non-Edible Plants*

Besides the already-established herb garden adjacent to the sidewalk, the Office’s front yard originally contained two established boxwood bushes and one established magnolia tree (see page 11 for botanical names)—both being non-edible plants. In the very first draft of the Office’s edible landscape plans, I had replaced the boxwoods with purple raspberry (*Rubus idaeus* ‘Royalty’) bushes and left the

magnolia in the plan. I knew removing a mature tree from the space would mean the removal of a carbon sink, so I incorporated the magnolia into the plan.

However, I did not have the same thought process in regard to the boxwoods. I told Christian Ryan I wanted to take the boxwoods out in order to replace them with purple raspberry bushes. She contacted Joshua Twardowski to ask whether or not the boxwoods were allowed to be removed. According to Twardowski, the boxwoods are over 30 year old and serve as exterior insulation for the Office. Because of these reasons, the boxwoods could not be removed. In order to still have edible plants in that space, I utilized companion planting around the base of the boxwoods by planting Tennessee coneflower and thyme.

### *Community Engagement*

The Office is located in an area of campus that receives relatively low traffic and, thus, has low visibility. This poses a challenge in terms of community engagement for the Office as a whole. Groups affiliated with the Office must reach out to the WKU community via social media, tabled events (i.e. Healthy Days, an annual student health fair put on by WellU), and collaborative efforts with other campus-affiliated groups such as the WKU Alive Center and the \$100 Solution™ House. Several people who have volunteered with Project Grow over the past year heard about the Office and the community garden through the WKU Alive Center or during one of the event at which Project Grow tabled.

Due to the limited time frame of this project, I was not able to personally go out into the community and advertise the landscape, as well as the community

garden, to the WKU community. I had to rely on the Fellows to help me spread the word to other students, as well as Christian Ryan to tell people about the landscape during Green Tours. Passersby on Regents can see the Office's landscape stand out amongst the conventional front lawns that line the remainder of the avenue. This kind of passive engagement also draws people into the Office. During the project, I had also hoped to create signage, but was unable to do so. Signage is currently being created by the Project Grow Fellows, student workers at the Office, and garden volunteers in order to create a more welcoming atmosphere and inform people about edible landscaping.

## CHAPTER 5

### REFLECTION

Looking back on when I first started the planning process for this project back in February 2015, I didn't realize then just how impactful this project would be for me—and those who engage with it. I believed in my ability to complete this project, but did not think the end result would be as spectacular as it actually is. I also didn't consider the academic and personal growth I would experience during the duration of this project.

This project provided me with a platform for hands-on learning. Spending many hours reading various articles and blog posts about companion planting and then actually implementing those practices in the landscape has allowed me to learn through experience. For example, when I tell people strawberries and shallots grow well together, I don't initially say it's because the literature says so, but because I have seen it happen in the landscape. I have not only learned through my successful attempts, but also through my mistakes. Now I know I must pay closer attention to weather conditions when seedlings and cuttings are outside.

In order to complete this project, I had to interact with many members of the WKU and/or Bowling Green communities. I learned how to interact with people of various personality types. Whether I was teaching student volunteers how to plant a

dahlia bulb, asking a professor who has never met me if he has extra muscadine vines, or bouncing ideas off my advisor about how to best remove the bermudagrass from the front yard, I engaged with people and learned so much about the importance of communication and collaboration in projects similar to this one.

Some of the volunteers at the Office over the past year have been international students. A few of the Project Grow Fellows are very active in Bridges International at WKU, a Christian organization that serves the university's international student population and provides an environment for cross-cultural learning and friendship cultivation. Through this connection, students hailing from several different countries (e.g. Brazil, Japan, South Korea) have helped in the garden and during the installation process of the edible landscape. During Spring 2016, a few students from Kuwait started to volunteer at the Office on a regular basis, one of whom was Abdulwahab Al-najdi. One day while he was volunteering, he and another volunteer created labels for Project Grow's seed catalog. Each label lists the name of each type of seed in English, as well as Arabic.

During my three years as a student in the Chinese Flagship Program at WKU, I have had the opportunity to interact with several international students from China. Since I study Chinese and want this landscape to be a place where everyone, including international students, can come to learn, I decided to include the Chinese names for every plant installed in the landscape not only in the plant table within this thesis (see Appendix B), but also on the plant markers next to every plant in the landscape. This allows for native Chinese speakers and WKU students who are

studying Chinese (like me) with either the Chinese Flagship or the Department of Modern Languages' Chinese Program to learn the English/Chinese names for plants they already know the names for in their mother language—or even learn about some plants with which they weren't previously familiar. Just as the seed catalog labels include Arabic names, I hope the plants markers will eventually have the Arabic names in addition to English and Chinese names.

One important factor that must be considered for any project like this one is its sustainability. At the end of the Spring 2016 semester, primary caretaking responsibilities were transferred from me to Project Grow. In order to make this transition successful, the 2015-16 Fellows helped me with several tasks within the landscape. I shared with the Fellows and two volunteers (who are now Fellows) my reasons for planting certain things where I did, how to tend to the plants in the landscape, and how many of the plants can be used. The four returning Fellows and two of the new Fellows are knowledgeable about and experienced with tending to the landscape, hence they will be able to ensure the sustainability of the landscape. A comprehensive plant/plant use table and plant care guide were included as appendices in this thesis as a reference guide for the Fellows.

Just as my journey through the duration of this project has benefited me on an academic and personal level, I hope this project can be just as beneficial for others. I hope the future Project Grow Fellows and student volunteers at the Office will find joy and relaxation in caring for and engaging with this landscape. I hope those who walk by the Office are struck with curiosity and want to know why this

front yard is different from those around it. I hope people become inspired to turn their own lawns into edible landscapes. Lastly, I hope this landscape continues to become a space that fosters a safe, positive community for all.



## APPENDICES

### Appendix A – Then-and-Now Pictures of the Office’s Backyard



**Figure A.1** Green Roof on the Office’s Garden Shed (taken June 22, 2015), Courtesy of the WKU Office of Sustainability



**Figure A.2** Hügelkultur Bed in the Office’s Backyard Being Planted (taken August 20, 2015), Courtesy of the WKU Office of Sustainability



**Figure A.3** Blueberry, Golden Raspberry, and Blackberry Bushes in the Office's Backyard (taken April 6, 2016)






**Figure A.4** The Office's Beehive (taken March 28, 2016)



Appendix B – Plants installed between 4/1/2015 and 5/13/2016




*Annuals (in USDA Zone 6b)*

Picture	Botanical Name	Common Name & Chinese Name	Organic/Heirloom	Use	Retrieved from	Date Planted
 1	<i>Allium cepa</i> var. <i>aggregatum</i>	shallots 火葱/青葱/红葱	--	when cooking, <b>bulbs</b> can substitute for onion; <b>green tops</b> used in soups, salads, stews	Tim Kersheville (Festina Lente Farm) <sup>a</sup>	10/9/2015
 2	<i>Anethum graveolens</i>	dill 莳萝	--	<b>seeds and leaves</b> can be eaten <b>fresh or dried</b> ; use as an herb for seasoning; dried seeds/leaves can be used for tea	WKU Office of Sustainability <sup>b</sup>	4/28/2016
 3	<i>Borago officinalis</i>	borage 琉璃苣	--	<b>leaves and flowers</b> can be used in drinks and as edible decoration in soups, salads, desserts <b>***consume in moderation (diuretic)***</b>	Martin Stone (personal)	4/28/2016

<sup>1</sup> "Shallot onions growing in earth." Photograph. *Growing Shallot Plants in the Vegetable Garden*. About Home, 3 Mar. 2016. Web.

<sup>2</sup> Gasteiger, Daniel. "dill plant." Photograph. *Dill: Herb. You Can Grow That!* Your Home Kitchen Garden, 5 Dec. 2012. Web.

<sup>3</sup> O'Conner, Peter. "Borage (Borago officinalis)." 18 Sept. 2010. Photograph. Flickr. Web.

 <p>4</p>	<i>Calendula officinalis</i> 'Kabloona'	Kabloona calendula 金盏花/金盏菊	heirloom	<b>flowers</b> can be used in salve, oil, tincture for soothing skin complaints; as a garnish; and to make yellow dye <b>***pregnant women, especially in 1<sup>st</sup> trimester, should NOT consume***</b>	Baker Creek Heirloom Seeds <sup>c</sup>	4/15/2016
 <p>5</p>	<i>Centaurea cyanus</i> 'Blue Boy'	Blue Boy bachelor's button 蓝色矢车菊	heirloom	<b>food: fresh florets</b> can be used in salads <b>medicine: petals</b> can be used in making anti-inflammatory eyewash, shampoo for treating eczema	Baker Creek Heirloom Seeds	4/15/2016
 <p>6</p>	<i>Coriandrum sativum</i>	cilantro/coriander 香菜	--	<b>fresh/dried leaves</b> (cilantro) used as herb; <b>seeds</b> (coriander) used as spice in Latin-American, Mexican, Indian cooking	WKU Office of Sustainability	4/5/2016

<sup>4</sup> "Kabloona – Calendula." Photograph. *Kabloona Calendula Seeds*. Baker Creek Heirloom Seed Co. Web.

<sup>5</sup> "Blue Boy – Bachelor's Button." Photograph. *Blue Boy Bachelor Button*. Baker Creek Heirloom Seed Co. Web.




<sup>6</sup> "Cilantro Leaves." Photograph. *What Is the Trick to Cilantro?* Bonnie Plants. Web.

 <p>7</p>	<i>Dahlia</i> 'Lutt Wichen'	Lutt Wichen dahlia 大丽花	heirloom	<b>tubers</b> can be boiled and eaten like potatoes; <b>flowers</b> can be used as a garnish	Old House Gardens <sup>d</sup>	4/22/2016
 <p>8</p>	<i>Dahlia</i> 'Rosemary Webb'	Rosemary Webb dahlia 大丽花	heirloom	(see above)	Old House Gardens	4/22/2016
 <p>9</p>	<i>Dahlia</i> 'Tommy Keith'	Tommy Keith dahlia 大丽花	heirloom	(see above)	Old House Gardens	4/22/2016

<sup>7</sup> "Lutt Wichen, 1941." Photograph. *Heirloom Dahlia Bulbs*. Old House Gardens. Web.

<sup>8</sup> "Rosemary Webb, 1956." Photograph. *Heirloom Dahlia Bulbs*. Old House Gardens. Web.




<sup>9</sup> "Tommy Keith, 1892." Photograph. *Web-Only Dahlias*. Old House Gardens. Web.

 <p>10</p>	<i>Dahlia</i> 'York and Lancaster'	York and Lancaster dahlia 大丽花	heirloom	<b>tubers</b> can be boiled and eaten like potatoes; <b>flowers</b> can be used as a garnish	Old House Gardens	4/22/2016
 <p>11</p>	<i>Helianthus annuus</i> 'Titan'	Titan sunflower 向日葵	heirloom	<b>seeds</b> can be eaten fresh, cooked, or used to extract sunflower oil	WKU Office of Sustainability	3/2016
 <p>12</p>	<i>Lactuca sativa</i> 'Gentilina'	Gentilina lettuce 莴苣	heirloom	<b>leaves</b> are edible	Baker Creek Heirloom Seeds	4/21/2016

<sup>10</sup> "York and Lancaster, 1915?" Photograph. *Heirloom Dahlia Bulbs*. Old House Gardens. Web.

<sup>11</sup> giantveggiegardener. "Titan sunflower at dawn." Photograph. "Sunflowers and Flowers In The Vegetable Garden." *giantveggiegardener*. Wordpress, 8 Sep. 2011. Web.




<sup>12</sup> "Gentilina Lettuce." Photograph. *lettuce, Gentilina*. Baker Creek Heirloom Seed Co. Web.

 <p>13</p>	<i>Matricaria recutita</i>	German chamomile 母菊	--	<b>fresh flowers/leaves</b> can be used in salads; fresh/dried tea can be also be made to soothe nerves and stomach problems	Baker Creek Heirloom Seeds	4/15/2016
 <p>14</p>	<i>Papaver somniferum</i> 'Hungarian Blue'	Hungarian Blue poppy 罂粟	organic, heirloom	<b>seeds</b> used in salad dressings, sauces, and baked goods	Botanical Interests	4/20/2016
 <p>15</p>	<i>Phaseolus coccineus</i> 'Scarlet Runner'	scarlet runner bean 红花菜豆	heirloom	<b>immature seed</b> pods can be <i>sparingly</i> eaten raw; <b>immature seeds</b> cooked like shelled beans; <b>dried seeds</b> long-cooked; <b>flowers</b> can be used in salads; <b>roots</b> can be cooked	Baker Creek Heirloom Seeds	4/20/2016

<sup>13</sup> "German Chamomile." Photograph. "Essential Oil Profile: German Chamomile." *Whispers of the Earth: Finding Health and Happiness, Naturally*. Wordpress, 3 Feb. 2012. Web.

<sup>14</sup> MacMullan, Ann. "poppy center." Photograph. "poppy pride." *roots to blooms*. Wordpress, 18 Jun. 2012. Web.

<sup>15</sup> "Phaseolus coccineus (RunnerBeans) (Pronkboon)." Photograph. *Edible Flowers*. Rivendell Village. Web.



 <p>16</p>	<i>Pimpinella anisum</i>	anise 茴芹/大茴香	--	<u>food</u> : <b>seeds</b> can be used in pasta dishes and baked goods <u>medicine</u> : can be used as tea to soothe coughing and congestion	Martin Stone (personal)	4/28/2016
 <p>17</p>	<i>Spinacia oleracea</i> ‘Bloomsdale Long Standing’	Bloomsdale Long Standing spinach 菠菜	heirloom	<b>leaves</b> and <b>stems</b> are edible	Baker Creek Heirloom Seeds	4/21/2016
 <p>18</p>	<i>Tagetes lemmonii</i>	Lemmon's marigold 芳香万寿菊	--	<b>flowers</b> and <b>leaves</b> can be used for tea	personal seed bank	4/22/2016

<sup>16</sup> “Anise Plant.” Photograph. *Buy Anise Tea, Health Benefits, How to Make, Side Effects*. Herbal Teas Online. Web.


<sup>17</sup> “Long Standing Bloomsdale (Spinach).” Photograph. *Organic Long Standing Bloomsdale (Spinach) Seeds*. Wild Garden Seed. Web.

<sup>18</sup> “Tagetes lemmonii flowers.” Photograph. *Mt. Lemmon Marigold (Tagetes lemmonii)*. Shelmerdine Winnipeg Garden Centre. Web.



 <p>19</p>	<i>Tropaeolum minus</i> 'Empress of India'	Empress of India nasturtium 旱金莲	heirloom	<b>flowers and leaves</b> can be used in salads and as garnishes; <b>immature seed pods</b> can be pickled and used as caper substitute	Seed Savers Exchange <sup>f</sup>	4/28/2016
 <p>20</p>	<i>Tropaeolum minus</i> 'Ladybird'	Ladybird nasturtium 旱金莲	heirloom	(see above)	Seed Savers Exchange	4/28/2016




*Biennials (in USDA Zone 6b)*

Picture	Botanical Name	Common Name & Chinese Name	Organic/Heirloom	Use	Retrieved from	Date Planted
 <p>21</p>	<i>Apium graveolens</i> var. <i>secalinum</i>	Chinese white celery 药芹	heirloom	<b>leaves and stalks</b> can be eaten raw or cooked, although commonly eaten cooked	Baker Creek Heirloom Seeds	seed started: 3/15/16

<sup>19</sup> "Nasturtium 'Empress of India'." Photograph. *Nasturtium 'Empress of India'*. Annie's Annuals & Perennials. Web.

<sup>20</sup> Columbine. "Nasturtium 'Ladybird'." 20 Jun. 2011. Photograph. Grows on You. Web.

<sup>21</sup> WingkLEE. "Chinese celery." Photograph. Apr. 2008. Wikimedia Commons. Web.




 <p>22</p>	<i>Beta vulgaris</i> subsp. <i>vulgaris</i> convar. <i>cicla</i> var. <i>flavescens</i> 'Peppermint'	Peppermint Swiss chard 薄荷唐莴苣	--	<b>leaves and stems</b> are edible; <b>seedlings</b> can be used in salads	Johnny's Selected Seeds <sup>g</sup>	4/21/2016
 <p>23</p>	<i>Beta vulgaris</i> subsp. <i>vulgaris</i> convar. <i>vulgaris</i> var. <i>vulgaris</i> 'Bull's Blood'	Bull's Blood beet 公牛血甜菜	organic, heirloom	<b>leaves, stems, and</b> <b>roots</b> are edible; roots can be juiced to make natural red dye	High Mowing Organic Seeds <sup>h</sup> , Baker Creek Heirloom Seeds	3/2/2016
 <p>24</p>	<i>Beta vulgaris</i> subsp. <i>vulgaris</i> convar. <i>vulgaris</i> var. <i>crassa</i> 'Detroit Dark Red'	Detroit Dark Red beet 甜菜	heirloom	(see above)	WKU Office of Sustainability	4/1/2016

<sup>22</sup> "Peppermint Swiss Chard." Photograph. *Peppermint Swiss Chard Seed*. Johnny's Selected Seeds. Web.

<sup>23</sup> "Bull's Blood Beet." Photograph. *Bull's Blood Beet*. Backyard Diva. Web.

<sup>24</sup> "Beet, Detroit Dark Red." Photograph. *Beet, Detroit Dark Red*. CondorSeeds. Web.




*Perennials (in USDA Zone 6b)*

Picture	Botanical Name	Common Name & Chinese Name	Organic/Heirloom	Use	Retrieved from	Date Planted
 25	<i>Allium sativum</i>	garlic 大蒜	--	<b>bulbous root, leaves, scape</b> (stem that appears in late spring—for hard-neck varieties), and <b>flowers</b> are edible	WKU Office of Sustainability	10/23/2015
 26	<i>Allium tuberosum</i>	garlic chives/Chinese flowering leek 韭菜	--	<b>leaves and flowers</b> are edible; use as an herb	WKU Office of Sustainability	4/20/2016
 27	<i>Amelanchier arborea</i>	serviceberry 树唐棣	--	<b>fruits</b> are edible	Tim Kersheville (Festina Lente Farm)	4/2015

<sup>25</sup> Land, Leslie. "garlic harvested from garden." Photograph. "Growing Your Own Garlic is Easy!," *Good Housekeeping*. 14 Sep. 2011. Web.

<sup>26</sup> Collins, Barrie. "garden-garlic-chives." Photograph. "Garlic Chives – Allium tuberosum." *the landscape of us*. 1 Feb. 2014. Web.




<sup>27</sup> "Serviceberry fruit." Photograph. *Landscape for Large Lots*. White Oak Nursery. Web.

 <p>28</p>	<i>Armoracia rusticana</i> 'Big Top'	Big Top horseradish 辣根	--	<b>fresh/dried roots and leaves</b> are edible	Nourse Farms <sup>i</sup>	4/6/2016
 <p>29</p>	<i>Asarum canadense</i>	wild ginger 加拿大细辛	--	<b>rhizome</b> used as ginger ( <i>Zingiber officinale</i> ) substitute	Joleen & Martin Stone (Lovee & Rose Farm) <sup>j</sup> , Tim Kersheville	4/29/2016 (two plants)
 <p>30</p>	<i>Corylus americana</i>	hazelnut 榛树	--	<b>nuts</b> can be toasted and eaten by themselves or used in variety of sweet/savory dishes	Tim Kersheville (Festine Lente Farm)	4/5/2015

<sup>28</sup> "Big Top horseradish roots." Photograph. *Big Top Horseradish Roots*. Nourse Farms. Web.

<sup>29</sup> Cullina, William. "Flowers: *Asarum canadense*." Photograph. *Asarum canadense (Canada wild ginger)*. Go Botany, 2016. Web.




<sup>30</sup> Cook, Will. "American Hazelnut (*Corylus americana*).". Photograph. *American Hazelnut (Corylus americana)*. Carolina Nature, 20 May 2010. Web.

 <p>31</p>	<i>Echinacea tennesseensis</i>	Tennessee coneflower 田纳西紫松果菊	*** endangered native species ***	<b>roots</b> can be used to make tinctures for preventing and treating colds and flu	Baker Creek Heirloom Seeds	4/5/2016
 <p>32</p>	<i>Fragaria vesca</i> 'Attila'	Attila alpine strawberry 高山草莓	heirloom	<b>flowers and fruits</b> are edible	Baker Creek Heirloom Seeds	4/20/2016
[not pictured]	<i>Fragaria vesca</i> 'Yellow Wonder'	Yellow Wonder alpine strawberry 高山草莓	--	(see above)	Martin Stone (personal)	4/20/2016
 <p>33</p>	<i>Fragaria virginiana</i>	strawberry 草莓	--	(see above)	WKU Office of Sustainability	10/9/2015, 10/23/2015 (near serviceberry) 4/20/2016 (bottle bed)

<sup>31</sup> "Echinacea Tennesseensis." Photograph. *Echinacea Tennesseensis*. Baker Creek Heirloom Seed Co. Web.

<sup>32</sup> "Attila Strawberry." Photograph. *Attila Strawberry*. Baker Creek Heirloom Seed Co. Web.

<sup>33</sup> "Fragaria virginiana." Photograph. *Common Wild Strawberry*. Connon Nurseries. Web.

 <p>34</p>	<i>Gaultheria procumbens</i>	wintergreen 平铺白珠树	--	<b>fruits</b> can be eaten raw or cooked; <b>young leaves</b> can be chewed on or used for tea	Outsidepride.com, Inc. <sup>k</sup>	4/22/2016
 <p>35</p>	<i>Hypericum perforatum</i>	St. John's wort 贯叶连翘	--	<b>flowers</b> infused into oil or salve as a topical skin treatment for burns and bruises, dried for use to relieve anxiety and depression	Seed Savers Exchange	4/29/2016
 <p>36</p>	<i>Malus x'UEB 3449-1'</i>	Tasty Red™ Urban Apple® (columnar) 枉状苹果树	--	<b>fruits</b> are edible***	Stark Bro's <sup>l</sup>	3/2/2016




\*\*\* **Note:** Two cultivars of apple tree are **required** to cross-pollinate. There is another cultivar of columnar apple (Blushing Delight™ Urban Apple®, which was also purchased from Stark Bro's) located in the backyard, which is why it is not listed in this table.

<sup>34</sup> "Gaultheria procumbens – Spreading Wintergreen." Photograph. *Gaultheria procumbens – Spreading Wintergreen*. GardenerDirect. Web.

<sup>35</sup> "St. John's Wort." Photograph. *Medicinal Plants-Common St. John's Wort*. Medicinal Plants of the Northeast. Web

<sup>36</sup> "Tasty Red™ Urban Apple®." Photograph. *Tasty Red™ Urban Apple®*. Stark Bro's. Web.






 <p>37</p>	<i>Passiflora incarnata</i>	purple passionflower 粉色西番莲	--	<b>large green fruits</b> eaten cooked; <b>yellow fruits</b> eaten raw; <b>leaves</b> can be cooked similar to greens	Joleen & Martin Stone (Lovee & Rose Farm)	4/29/2016
 <p>38</p>	<i>Rheum rhabarbarum</i>	rhubarb 大黄	--	<b>leafstalks</b> can be cooked into pies, preserved as jam, or fermented into wine <b>***rhubarb leaves are deadly poisonous when eaten***</b>	WKU Office of Sustainability	4/2015
 <p>39</p>	<i>Rubus idaeus</i> var. <i>strigosus</i> 'Fall Gold'	Fall Gold raspberry 金山莓	heirloom	<b>fruits</b> are edible	Joleen & Martin Stone (Lovee & Rose Farm)	4/29/2016

<sup>37</sup> "Passiflora incarnata flower." Photograph. *Passiflora incarnata*. BIO 406D – Native Plants. Web.

<[http://www.bio.utexas.edu/courses/bio406d/images/pics/pas/passiflora\\_incarnata.htm](http://www.bio.utexas.edu/courses/bio406d/images/pics/pas/passiflora_incarnata.htm)>

<sup>38</sup> Lerner, Rosie. "Rhubarb plant." Photograph. "P&PDL Picture of the Week for April 13, 2009 – Rhubarb." *Rhubarb – The P&PDL Picture of the Week*. Purdue Plant & Pest Diagnostic Laboratory, 31 Mar. 2015. Web.

<sup>39</sup> Snohomish Shepherdess. "Fall Gold Raspberries." Photograph. "Three Seed Bread and Fall Gold Raspberry Jam." *Sheep, Spinach and Strawberries*. Blogger, 5 Oct. 2010. Web.




 <p>40</p>	<i>Ruta graveolens</i>	rue 芸香	--	<b>dried leaves</b> can be stuffed into cloth bags for use as an insect repellant in the home	Baker Creek Heirloom Seeds	5/4/2016
 <p>41</p>	<i>Sambucus canadensis</i>	elderberry 接骨木	--	<b>flowers</b> can be mixed into baked goods or used in tea; <b>fruits</b> can be eaten when cooked or fermented ***Do NOT eat the stems, leaves, bark, branches, roots, and raw elderberry fruit/flowers!***	Ken Casey (private residence) <sup>m</sup>	5/8/2016
 <p>42</p>	<i>Tanacetum vulgare</i> L.	tansy 菊蒿	--	<b>young shoots</b> used for green dye; <b>leaves and flowers</b> used for yellow dye, as well as to make insecticide (stronger when mixed with elderberry leaves)	Baker Creek Heirloom Seeds	5/4/2016

<sup>40</sup> "Rue, Herb O'Grace." Photograph. *Rue, Herb O'Grace*. Baker Creek Heirloom Seed Co. Web.

<sup>41</sup> "Bob Gordon Elder." Photograph. *Bob Gordon Elder*. Richters Catalog. Web.

<sup>42</sup> "Tansy." Photograph. *Tansy herb seeds*. Baker Creek Heirloom Seed Co. Web.

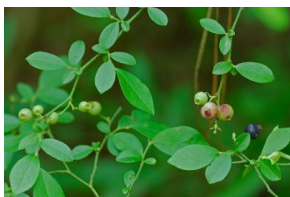





 <p>43</p>	<i>Thymus vulgaris</i>	thyme 百里香	organic	<b>fresh/dried leaves</b> used as herb; <b>flowers</b> used to garnish soups	WKU Office of Sustainability	4/5/16
 <p>44</p>	<i>Trifolium repens</i>	Miniclover® 白三叶	--	<b>leaves</b> can be eaten raw or cooked; <b>roots</b> can be cooked	Outsidepride.com, Inc.	10/16/2015
 <p>45</p>	<i>Trifolium repens</i>	White Dutch clover 白三叶	--	<b>leaves</b> can be eaten raw or cooked; <b>young flowers</b> can be used in salads; <b>roots</b> can be cooked; <b>dried flowers</b> can be used to make tea and mixed into baked goods	Outsidepride.com, Inc.	10/16/2015, 3/23/2016. 4/29/2016

<sup>43</sup> "Thymus vulgaris – garden." Photograph. *L. Culinary Herb Garden Plant List – terraced bed on north-east slope*. Jug Handle Creek Farm & Nature Center. Web.

<sup>44</sup> "Miniclover Project." Photograph. *Miniclover® White Clover Seeds*. Outsidepride.com. Web.

<sup>45</sup> "White Dutch Clover." Photograph. *Bulk White Dutch Clover Seeds*. Outsidepride.com. Web



 <p>46</p>	<i>Vaccinium elliottii</i>	Elliot's blueberry 埃利奥特蓝莓	--	<b>fruits</b> are edible	Nourse Farms	4/2015
 <p>47</p>	<i>Vaccinium corymbosum</i> 'Jersey'	Jersey blueberry 泽西蓝莓	--	<b>fruits</b> are edible	Nourse Farms	4/2015
 <p>48</p>	<i>Vaccinium corymbosum</i> 'Nelson'	Nelson blueberry 纳尔逊蓝莓	--	(see above)	Nourse Farms	4/2015
 <p>49</p>	<i>Viola x wittrockiana</i> 'Laura'	Laura pansy 三色堇	heirloom	<b>flowers</b> used in desserts, salads, soups; can be candied for use as cake decoration	Baker Creek Heirloom Seeds	4/15/2016

<sup>46</sup> Fleming, Gary P. "Vaccinium elliottii Chapman." Photograph. *Vaccinium elliottii Chapman*. Digital Atlas of the Virginia Flora. Web.

<sup>47</sup> "Vaccinium corymbosum." Photograph. *Vaccinium corymbosum*. Burnt Meadow Nursery. Web.

<sup>48</sup> "Vaccinium corymbosum 'Nelson'." Photograph. *Blueberries*. Royal Horticultural Society. Web.

<sup>49</sup> "Flowers." Photograph. *Laura Pansy*. Baker Creek Heirloom Seed Co. Web.

 <p>50</p>	<i>Vitis rotundifolia</i>	muscadine 圆叶葡萄	--	<b>fruits</b> can be eaten fresh or used to make wine, juice, jelly	WKU Farm <sup>n</sup>	5/6/2016
 <p>51</p>	<i>Vitis vinifera</i> 'Cabernet Doré'	Cabernet Doré wine grape 酿酒葡萄	--	<b>fruits</b> used to make wine; <b>leaves</b> can be eaten raw or cooked	WKU Farm	5/6/2016

Note: See Appendix C for the addresses of all seed and plant sources listed above.

<sup>50</sup> "Noble grapes on the vine." Photograph. *Choosing a Muscadine Cultivar*. The University of Georgia College of Agricultural & Environmental Sciences. Web.

<sup>51</sup> "Cabernet Doré." Photograph. *Cabernet Doré (Grandchild of Sauvignon Blanc)*. Davis Viticultural Research. Web.

## Appendix C – Addresses for All Seed and Plant Sources Listed in Appendix B

- |  |  |
|--|--|
| <sup>a</sup> Tim Kersheville<br>P.O. Box 283<br>Bowling Green, KY 42102                    | <sup>h</sup> High Mowing Organic Seeds<br>76 Quarry Road<br>Wolcott, VT 05680      |
| <sup>b</sup> WKU Office of Sustainability<br>503 Regents Avenue<br>Bowling Green, KY 42101 | <sup>i</sup> Nourse Farms<br>41 River Road<br>Whately, MA 01093                    |
| <sup>c</sup> Baker Creek Heirloom Seeds<br>2278 Baker Creek Road<br>Mansfield, MO 65704    | <sup>j</sup> Joleen & Martin Stone<br>650 W E Cole Road<br>Bowling Green, KY 42101 |
| <sup>d</sup> Old House Gardens<br>536 Third Street<br>Ann Arbor, MI 48103                  | <sup>k</sup> Outsidepride.com, Inc.<br>915 N. Main<br>Independence, OR 97351       |
| <sup>e</sup> Botanical Interests<br>660 Compton Street<br>Broomfield, CO 80020             | <sup>l</sup> Stark Bro's<br>P.O. Box 1800<br>Louisiana, MO 63353                   |
| <sup>f</sup> Seed Savers Exchange<br>3094 North Winn Road<br>Decorah, IA 52101             | <sup>m</sup> Ken Casey<br>5017 Ridgeview Drive<br>Bowling Green, KY 42101          |
| <sup>g</sup> Johnny's Selected Seeds<br>955 Benton Avenue<br>Winslow, ME 04901             | <sup>n</sup> WKU Farm<br>406 Elrod Road<br>Bowling Green, KY 42104                 |

## Appendix D – Plant Care Guide (listed in alphabetical order by common name)

### Anise

*Light Requirement:* full sun

*Soil Requirement:* well-drained soil rich in organic matter (will grow in poor soils)

#### *Planting*

- Start seeds outside 2 weeks after average last frost date
- Sow seeds ¼" deep and 12" apart

#### *Harvesting*

- Collect leaves for fresh use as needed
- Collect seed heads when still green; hang them in a warm, dry place until dried, then pasteurize them in an oven at 100°F for 15 minutes (Albert, 2009)

### Apple, Columnar

*Light Requirement:* full sun

*Soil Requirement:* well-drained soil

#### *Planting*

- Bareroot trees should have their roots soaked in a tub for 1-2 hours to prevent roots from drying out while digging the hole—don't soak for more than six hours
- Dig hole deep and wide enough for roots to be able to spread and grow—at least 1.5x the actual length and width of root system at the time of planting
- Mix soil with compost to increase aeration
- Have one person hold the tree to keep it straight and other fill in the hole; once hole is filled, tamp soil down around the base of the tree

Note: For grafted trees, the graft union (see Figure A.1) should be 2-3" above soil line.



**Figure A.5** Graft Union of an Apple Tree, Source: University of Maine Cooperative Extension, n.d.

**Note:** Apple trees cross-pollinate, so at least TWO cultivars of apple **must** be planted in order to successfully bear fruit!

### *Pruning*

- Prune in the **winter** when the tree is dormant
- Make sharp cuts about ¼" away from an outward-pointing bud
- Remove branches that are not at a wide 10 o'clock or 2 o'clock angle—limbs with narrow crotch angles have a high risk for splitting later on in tree's life (Stark Bro's, n.d.)

*Yield:* for a columnar apple, ¼-1 bushel (1 bushel ≈ 42-48 lbs ≈ 126 medium apples)

## **Bachelor's Button**

*Light Requirement:* full sun

*Soil Requirement:* well-drained soil

*Planting:* Direct sow seeds just under soil surface right before the average last frost or shortly after

*Seed Saving:*

- Allow flowers to mature and fade on plant
- Remove pod when it has turned from light tan to brown and allow it to dry for a few days
- Use thumb to rub open end of the pod and release the seeds

## **Basil**

*Light Requirement:* full sun to partial shade

*Soil Requirement:* well-drained, rich soil

*Planting:*

- Sow seeds outside 1-2 weeks after average last frost and when soil temperature is at least 60°F **or** start seeds indoors 6-8 weeks before average last frost
- Plant seeds ¼" deep and 12" apart
- Transplant 3" seedlings outdoors when weather is fairly warm (Creasy, 2010)

*Growth and Harvest*

- Pinch flower buds off to prevent bolting, which can make the leaves bitter
- Can be pruned every 2-3 weeks to encourage new growth

- Leaves have best flavor when plant is not watered for 2 days before harvest due to higher presence of oils (“All About Basil,” n.d.)
- To retain cultivar purity, make sure different cultivars are at least 150’ apart

*Seed Saving:*

- Remove brown and spent flower heads and dry them for a few days
- Crush heads over colander to sort out the tiny black seeds into a plastic bag or glass container
- Store in dry, dark place (Grant, 2016)

## **Bean**

*Light Requirement:* full sun

*Soil Requirement:* loose, very well-drained loamy soil

*Planting:*

- Sow seeds outdoors 1” deep and 2” apart
- When seedlings are 6” tall, mulch them with 3” of compost
- Train pole beans to trellis

*Growth and Harvest:*

- For runner beans: if snap beans are desired, pick very young; if not, allow pods to mature to brown, then shell and dry
- Keep immature pods picked on snap types—otherwise production will stop
- Pole beans produce for a few months, bush beans for about a month (Creasy, 2010)

*Seed Saving:* allow pods to ripen on vine until they’re dry and the seeds rattle inside, then pick pods and store indoors (MacKensie, 2008)

## **Beet**

*Light Requirement:* full sun to partial shade

*Soil Requirement:* well drained sandy loam or silt loam that’s high in organic matter (will tolerate poor soils)

*Planting:*

- Plant in early spring as soon as soil can be worked **or** 10 weeks before heavy freeze for winter storage; sow seeds ¾” deep and 1” apart
- Thin seedlings by cutting them when they are 4-5” tall—seedlings can be eaten

*Harvest:* Uproot beets right before greens are more than 6" tall ("Vegetable Growing Guides," 2006)

*Seed Saving:*

- Plant seeds 10 weeks before winter so they can be left in the ground to overwinter; mulch with a thick layer of straw
- Allow beet seeds to mature and dry on plants before rubbing them off of the stems
- **Will cross-pollinate with Swiss chard**, so place windproof cage/bag around plants to prevent contamination (*Seed Saving Handbook*, n.d.)

## Blueberry

\*\*\*all varieties planted in front yard are late-season **highbush**\*\*\*

*Light requirement:* full sun to partial shade

*Soil requirement:* acidic (pH = 4.5-5.5), well-drained soil

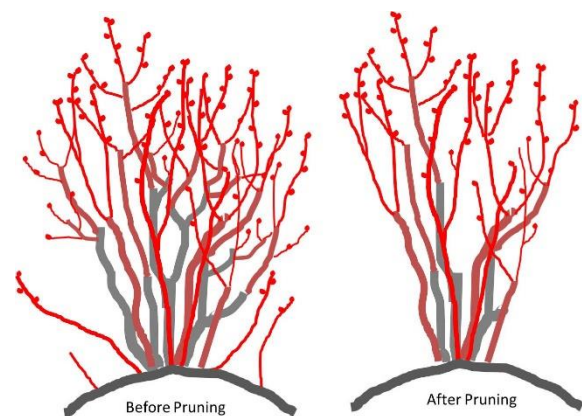
- Note: If soil is not acidic enough, apply pine needles/chips, spent coffee grounds, and/or leaf mulch

*Pruning:*

- Do **NOT** prune for the first few years except to remove broken/weak branches
- Fruit is mostly produced on smooth, colorful new wood; old, non-productive wood is gray with rough bark
- Prune in late winter after leaves have fallen off—remove some older woody branches to thin out center and remove weak growth

*Harvest*

- Put netting over bushes to prevent birds from snatching berries
- Allow berries to stay on plant for a week after turning blue and develop grayish cast before harvesting
- Berries should be sweet and fall off easily when ripe (Creasy, 2010)



**Figure A.6** Highbush Blueberry Before and After Proper Pruning, Source: Cline, 2013

## Borage

*Light Requirement:* full sun to partial shade



*Soil Requirement:* rich, moist soil

*Planting:*

- Choose a planting site that is well protected from the wind
- Start seed indoors 3-4 weeks before average last frost date **or** direct sow after danger of frost has passed
- Transplant seedlings 1' apart **or** sow seeds directly under soil surface, then thin seedlings to at least 1' apart

*Harvest:* Gather fresh leaves and flowers as needed—Note: they do not dry well

*Seed Saving:* Pick seeds when blooms begin to fade and turn brown, otherwise the plant will seed itself for next season (“How to Grow Borage,” 2012)

## **Calendula**

*Light Requirement:* full sun to partial shade

*Soil Requirement:* well-drained soil

*Planting:*

- Start seeds indoors 6-8 weeks before average last frost **or** direct sow a few weeks before average last frost
- Cover seeds completely with soil—light *inhibits* their germination (“Flower Growing Guides,” 2006)

*Seed Saving:* Harvest flower heads to dry inside or allow flower heads to dry on the plant; separate curly seeds from head when completely dry

## **Celery**

*Light Requirement:* partial sun

*Soil Requirement:* rich, moist soil

*Planting:*

- Start seeds indoors 8-10 weeks before average last frost date
- Sprinkle seeds over sandy seed starting mix and **lightly** cover with soil
- Once seeds have sprouted and are large enough, either thin seedlings or put them in their own pots
- Pick a site where the celery will get 6 hours of sun and shade for the hottest part of the day
- Make sure soil is always moist and fertilize regularly (Rhoades, 2016)

*Harvest:* Harvest stalks when they are about 8" tall, starting on the outside and working inward (Note: The darker the stalks, the more nutrients they contain...but the tougher the stalk)

*Seed Saving:*

- Leave large portion of plant stump in the ground during late fall to overwinter
- Allow seeds produced on plant the following spring to dry on the plant completely before harvesting (*Seed Saving Handbook*, n.d.)

## **Chamomile**

*Light Requirement:* full sun to partial shade

*Soil Requirement:* well-drained, poor to average soil

*Planting:*

- Direct sow seed or transplant in spring—around the same time peas are planted
- Scatter seed on soil's surface and gently press them into the soil

## **Chives**

*Light Requirement:* full sun

*Soil Requirement:* fairly rich soil

*Growth and Harvest*

- Divide plants every 2-3 years
- Harvest by cutting off leaves with scissors; flowers are best eaten when they have just opened (Creasy, 2010)

*Seed Saving:* harvest flowers when they have completely dried on the plant; seeds will easily crumble out of dried flowers (*Seed Saving Handbook*, n.d.)

## **Cilantro/Coriander**

*Light Requirement:* full sun to partial shade

*Soil Requirement:* well-drained, moist soil

*Planting:* Direct sow seeds ¼" deep and 6-8" apart 2 weeks before average last frost date

*Growth and Harvest:*

- If cilantro is desired, snip off top part of main stem as soon as immature flower buds or seed pods appear—bolting (setting seed) causes plant to degrade
- Cilantro leaves are best used fresh—flavor is lost when dried
- If coriander is desired, cut tops of stems when seed pods begin to turn brown and crack when pressed; place pods in a paper bag to catch all seeds; allow pods to finish ripening in a cool, dark place for a couple weeks (“All About Cilantro,” n.d.)

## **Clover**

*Light Requirement:* full sun to partial shade

*Soil Requirement:* well-drained, fertile soil; can grow on poor clayey soils

*Seeding:*

- Seed in early spring and in late summer
- Put down ¼-½ lb seed/1000 ft<sup>2</sup>
- Seed can germinate on surface under ideal weather and soil conditions; seeds should be sown no more than ¼” deep

## **Corn**

*Light Requirement:* full sun

*Soil Requirement:* nitrogen-rich soil

*Planting:*

- Direct sow seed 2 weeks after average last frost date
- If two or more cultivars are planted in the space, keep them at least 400 yards apart or plant them so they tassel two weeks apart to avoid cross-pollination

*Growth and Harvest:*

- Carefully weed around the stalks during 1<sup>st</sup> month of growth
- Needs about 1” of water/week—particularly when stalks begin to tassel; apply water at soil’s surface
- When stalks are about 6” tall, apply a high-nitrogen fertilizer (e.g. blood meal, diluted fish-based organic fertilizer, etc.)
- For *sweet corn* harvest: pull back part of husk and pierce a kernel with thumbnail; if milky liquid comes out, ears are ripe and ready for harvest
- For *popcorn* harvest: leave ears on stalks to dry until first hard frost; if weather is cloudy and wet, cut and stack stalks in cool, dry place until corn dries (Rodale’s Organic Life Staff, 2016)

## Cucumber

*Light Requirement:* full sun

*Soil Requirement:* rich soil

*Planting and Growth:*

- Start seeds indoors 1 week before average last frost date for transplanting 3 weeks later **OR** direct sow seed outside 2 weeks after average last frost date
- Sow seeds 1" deep and 6-10" apart
- Plants can be trellised
- Soil should always be moist—when dry, water slowly at soil's surface in the morning or early afternoon
- Mulch around plant base to help soil retain moisture longer ("Cucumbers," n.d.)

*Seed Saving:* leave on vine to ripen well past eating stage; pick cucumbers and allow them to age for 20 days before removing and cleaning seeds (*Seed Saving Handbook*)

## Dahlia

*Light Requirement:* full sun to partial shade (need at least 8 hours of sunlight)

*Soil Requirement:* fertile, well-drained soil

*Planting:*

- Plant tubers outside after average last frost date
- Dig a hole 1' deep and wide, then return some of the soil to the hole
- Pound a sturdy stake near the center so that at 5-6' of stake is above ground
- Lay tuber *horizontally* in front of stake, with eye up (if visible), 4-6" below soil level
- Cover with 2-3" of soil

*Growth:*

- If soil is moist, **do not** water until tuber sprouts—wet soil causes rot
- For a bushier plant, pinch out center shoot after it has three sets of leaves
- Water well all season
- Tie stalk to stake as needed
- Cut spent blooms to encourage more flowering

*Tuber Saving:*

- Wait at least one week after foliage has been "blackened" by frost before gathering tubers

- Carefully dig at least 1' away from stalks when collecting tubers; wash off soil and allow tubers to dry upside down in a cool, dry place for a day or two
- Divide clumps with a sturdy knife in the fall or spring, making sure there is a piece of the crown (the thickened part where the stem meets the tuber and where the eyes are located) with every clump; allow cuts to dry for a full day before storage
- Pack in peat moss, wood shavings, or something similar and store in plastic grocery bags, in garbage bags inside boxes, or in covered plastic storage boxes to prevent tubers from desiccating
- Store in a cool (40-45°F), dry place, checking on the tubers occasionally; if condensation is present, allow excess moisture to escape; if tubers seem to be shriveling, sprinkle them with water (Old House Gardens, n.d.)

## **Dill**

*Light Requirement:* full sun to partial shade

*Soil Requirement:* well-drained, rich soil

*Planting:*

- Direct sow seeds outside 2-3 weeks before the average last frost date
- Sow seeds ¼ to ½" deep and 12" apart

*Growth and Harvest:*

- Water dill evenly and regularly until established; once established, allow soil to almost dry out completely between waterings
- Cut off top 2-3" of plants after they have reached 8" tall or more
- Snip fresh leaves as needed—they have best flavor before flowers open

*Seed Saving:* collect flower heads before seeds are fully dry and shatter; hang flower heads upside down and allow dried seeds to fall onto paper for collection (Albert, "How to Grow Dill," 2009)

## **Elderberry**

*Light Requirement:* full sun to partial shade

*Soil Requirement:* well-drained, rich soil

*Pruning:*

- Once bushes are 3 years old, prune out dead wood and weak branches every spring to control growth and renew fruiting wood
- Remove any suckers that extend more than 2 feet from the base (Creasy, 2010)

*Harvest:* cut flower heads that have just opened and have few to no dark spots about 4-6" below the flower (Lenhardt, 2015); pick berries that are deeply colored, slightly soft, and not shriveled (Creasy, 2010)

## **Ginger, Wild**

*Light Requirement:* partial shade to full shade

*Soil Requirement:* moist, rich soil

*Transplanting:* ideal during April and May; space plants at least 18"—they'll eventually spread into a nice ground cover

## **Hazelnut**

*Light Requirement:* full sun to partial shade

*Soil Requirement:* deep, well-drained loam

Note: Hazelnut shrubs/trees cross-pollinate, so at least TWO plants **must** be planted in order to successfully bear nuts!

*Harvest:*

- Bears nuts in alternate years
- Nut is ripe when you can push it around within husk and loosen it (Creasy, 2010)

## **Horseradish**

*Light Requirement:* full sun to partial shade

*Soil Requirement:* fertile, well-drained soil

*Planting:* put out a few weeks before average last frost date; plant roots/crowns diagonally with flat end up and slanted up; the flat end should be 1-2" below the soil's surface

*Harvest:*

- Allow plants to establish their root systems for the first year before harvesting
- Harvest in late fall after several frosts have damaged the leaves
- Use digging fork to loosen up soil along sides of plant, gathering broken root pieces as you dig
- Replant root pieces the size of a pencil or smaller; store larger pieces in plastic bags in the fridge
- Can be harvested through winter as long as ground is not frozen or first thing in spring (Pleasant, 2014)

## **Lettuce**

*Light Requirement:* full sun to partial shade

*Soil Requirement:* rich, well-drained soil

## **Nasturtium**

*Light Requirement:* full sun to partial shade

*Soil Requirement:* well-drained soil

- Note: If too much nitrogen is present in the soil, nasturtiums will stop blooming and only produce leaves (Creasy, 2010)

*Seed Saving:* pick large green seeds just under base of the flower and allow to dry

## **Passionflower**

*Light Requirement:* full sun to partial shade

*Soil Requirement:* can grow in poor soils

*Planting:* plant vines 1.5-2' apart

*Growth:*

- Keep soil around roots consistently moist to encourage flower and fruit production
- Spread 4" layer of mulch around vines to help retain soil moisture
- Use pruners to cut back unwanted growth and remove weak growth in early spring
- Mulch roots in late fall to protect roots against frost during winter (Caines, n.d.)

*Harvest:* fruits are mature when yellow; can be stored for 1-2 weeks post-harvest at cool room temperature

## **Pepper, Ornamental Hot**

*Light Requirement:* full sun to partial shade

*Soil Requirement:* fairly rich soil

*Planting:*

- Start seeds indoors 6-8 weeks before average last frost date
- Transplant seedlings 18-24" apart
- If small plants flowers, pinch them off for 3 weeks to encourage leaf and root development

*Harvest:* allow hot peppers to ripen completely before harvesting (Creasy, 2010)

*Seed Saving:* remove seeds from inside and allow to dry on paper towel/newspaper/etc.

## **Poppy**

*Light Requirement:* full sun

*Soil Requirement:* fertile, well-drained soil

*Planting:* in either late fall or early spring, scatter seeds on soil's surface; gently press seeds 1/8" into soil

*Harvest:* seedpods are ripe when pods are leathery and the seeds begin to rattle in the pods; best to harvest when weather is dry; if wet, allow pods to air dry before removing seeds (Cope & Drost, 2012)

## **Raspberry, Golden**

*Light Requirement:* full sun to partial shade

*Soil Requirement:* well-drained, slightly acidic soil

*Pruning:* use loppers to remove the dead 2<sup>nd</sup> year (fruiting) canes *or* mow/cut down **all** canes

## **Rhubarb**

*Light Requirement:* full sun

*Soil Requirement:* acidic (pH = 6.0-6.8; can tolerate as low as 5.0), well-drained loam

*Growth and Harvest:*

- Mulch in spring and fall with compost to keep weeds down and fertilize
- Harvest begins in spring, slows during the summer, and (for well-established plants) picks back up again in fall
- After about a decade, if plant is crowded, dig it up and divide into 3 or 4 plants

## **Rosemary**

*Light Requirement:* full sun

*Soil Requirement:* slightly alkaline, well-drained soil

*Propagating Rosemary from Stem Cuttings:*

1. Find new shoots on the mother plant—they should have green stems that are flexible.



2. Cut 5-6" sections of the stem, with the growing tips included at the tops.
3. Strip leaves on the lower 2" of the stem.
4. Place cuttings in a jar of water. Put jar in a warm place that is not in direct sunlight. Change water every few 2 or 3 days, replacing with room temperature water. After 4-8 weeks, it should be apparent whether or not the cuttings are alive.
5. Plant cuttings into a 4" pot with sandy potting mix, being careful not to damage the roots. Place in indirect light while roots are being established, then move to direct light. Water only when soil feels dry to avoid plant rot (Arsenault, 2015).
6. Congratulations! You are now the caregiver to a new rosemary plant. ☺

## **Rue**

*Light Requirement:* full sun

*Soil Requirement:* well-drained soil

*Planting:* sow seeds on soil surface after average last frost date

## **Serviceberry**

*Light Requirement:* full sun to partial shade

*Soil Requirement:* well-drained soil

*Pruning:* every winter, remove deadwood, diseased wood, and crossed branches as needed

## **Shallot**

*Light Requirement:* full sun

*Soil Requirement:* well-drained soil (less compaction = bigger bulbs)

*Planting:* plant bulbs in either late fall for an early summer harvest or early spring for a late summer harvest

*Harvest:*

- Green tops can be harvested after 30 days
- Bulbs take ~90 days to mature; harvest when greens start to wither and fall over—bulbs will protrude from the soil

## **St. John's Wort**

*Light Requirement:* partial sun to partial shade

*Soil Requirement:* sandy soil

*Planting:* sow seeds on soil's surface after average last frost date

*Harvest:* harvest leaves and flowers when flowers are in full bloom

## **Strawberry**

*Light Requirement:* full sun to partial shade

*Soil Requirement:* slightly acidic (optimal pH = 6.0-6.5), well-drained soil with high organic matter content

- Note: Do NOT plant strawberries where tomatoes have grown! The soil can harbor verticillium wilt, which affects strawberries (Creasy, 2010).

## **Sweet Potato**

*Light Requirement:* full sun to partial shade

*Soil Requirement:* slightly acidic (optimal pH = 5.8-6.2; will grow at pH = 4.5-7.5), very well-drained sandy loam (can handle harder clay soils)

### How to Start Sweet Potato Slips (Sprouts):

1. Select tubers approximately 2" in diameter to overwinter
2. Store tubers in a cool (55-60°F), dark place inside of a cardboard box or paper bag until March
3. During the first week of March, place bagged/boxed tubers in a dark closet with a small heater and humidifier—ideal conditions for sprouting are 75-85°F with 90% humidity. Check temperature and refill humidifier daily.
4. After a couple of weeks, when sprouts at end of roots are ~¼" long, slips are ready for planting (Dermer, 2014)

### *Planting*

- Carefully pull slips off of roots
- Once soil is warm in spring and chance of frost has passed, bury the bottom of the slips 4" deep and 12" apart
- Sweet potatoes grow best in raised beds
- Keep vines fairly moist until well established and growing vigorously

### *Harvesting*

- Harvest in fall before a frost when soil is slightly moist
- Handle tubers carefully to prevent bruising; gently brush dirt off, but do **not** rinse with water
- Cure tubers for 6 weeks in an 80°F room with high humidity to allow tubers to develop their characteristic sweet flavor

- Once cured, sweet potatoes can be stored at around 60°F for up to 5 months (Creasy, 2010)

## **Swiss Chard**

*Light Requirement:* full sun to partial shade

*Soil Requirement:* well-drained, fertile soil

*Planting:* direct sow seeds 2 weeks before average last frost date

## **Tansy**

*Light Requirement:* full sun

*Soil Requirement:* well-drained, fertile soil

*Planting:* after average last frost date, sow seeds on soil's surface and lightly cover with soil/compost

## **Thyme**

*Light Requirement:* full sun

*Soil Requirement:* well-drained rocky or sandy soil

Note: Thyme can be propagated from stem cuttings. See the "Rosemary" (p. 61-62) section for instructions on how to take stem cuttings.

## **Tomato**

*Light Requirement:* full sun

*Soil Requirement:* well-drained garden loam with lots of organic matter

*Planting and Growth*

- Start seeds inside 6-8 weeks before average last frost date
- After all danger of frost is over, incorporate large amounts of compost into planting area
- Plant indeterminate (vining) types 2-3' apart if staking, further apart if letting them sprawl
- Remove all but top two sets of leaves on transplant and set deep into the planting hole so just the leaves show above the soil line. Fill in with soil, gently tamp it into place, make a small watering well around the base, and water thoroughly.
- Use 8'-tall stakes for staking indeterminate tomatoes and pound stakes 2' into ground
- Keep soil moist, but not soaked, until plant puts out new leaves

- Once tomatoes are growing vigorously, use wireless flexible ties to secure main stem to stake every 8"
- When plant reaches top of the stake, remove the terminal bud—this controls the plant's height and forces plant to fruit sooner
- When weather has warmed and will continue to stay warm for a while, apply 3" of organic mulch (e.g. wheat straw, compost, leaf mulch, etc.) to keep soil moist and prevent diseases such as blossom end rot (Creasy, 2010)

## **Wintergreen**

*Light Requirement:* full sun to partial shade (can tolerate full shade when established)

*Soil Requirement:* slightly-acidic (pH = 4.2-6.5), well-drained sandy or loam soils

Note: Wintergreen can be propagated via division in early spring, as well as with seed.

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